

IN THE CLAIMS:

1. (Currently Amended) A recording/reproduction method, comprising the steps of:

generating a binary signal by converting a reproduction signal to a binary form;

generating a synchronization signal using the binary signal, the synchronization signal being in synchronization with a clock signal;

measuring a time interval between the binary signal and the synchronization signal and measuring an edge shift amount between the time interval and a clock time interval specified by the clock signal; and

changing a parameter of a recording pulse based on the edge shift amount,

wherein the reproduction signal is a signal obtained by reproducing either a predetermined signal sequence or an arbitrary random signal sequence, as a function of and whether the predetermined signal sequence or the arbitrary random signal sequence is reproduced depends on the edge shift amount.

2. (Original) A recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring the edge shift amount for each number of clock cycles of the clock signal.

3. (Original) A recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises repeatedly measuring a time interval between the binary signal and the synchronization signal, integrating the measured time intervals, and calculating a mean value of the edge shift amount.

4. (Original) A recording/reproduction method according to claim 1, wherein the parameter of the recording pulse includes at least one of a movement amount, a power, and a width of the recording pulse.

5. (Original) A recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring a leading edge time interval between a mark leading edge of the binary signal and a mark trailing edge of the synchronization signal, and measuring a leading edge shift amount between the leading edge time interval and the clock time interval.

6. (Original) A recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring a trailing edge time interval between a mark trailing edge of the binary signal and a mark leading edge of the synchronization signal, and measuring a trailing edge shift amount between the trailing edge time interval and the clock time interval.

7. (Original) A recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring a leading edge time interval between a mark leading edge of the binary signal and a mark trailing edge of the synchronization signal, measuring a leading edge shift amount between the leading edge time interval and the clock time interval, measuring a trailing edge time interval between a mark trailing edge of the binary signal and a mark leading edge of the synchronization signal, and measuring a trailing edge shift amount between the trailing edge time interval and the clock time interval.

8. (Canceled)

9. (Original) A recording/reproduction method according to claim 1, wherein: the recording pulse contains a first pulse and a cooling pulse; and parameters of the first pulse and the cooling pulse are grouped into three or more categories depending on mark length.

10. (Original) A recording/reproduction method according to claim 7, wherein: the measuring step comprises measuring a jitter value;

the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and

the step of changing the parameter of the recording pulse comprises changing a movement amount of the first pulse based on the leading edge shift amount, changing a movement amount of the cooling pulse based on the trailing edge shift amount, and changing a movement amount of the multipulse based on the jitter value.

11. (Original) A recording/reproduction method according to claim 7, wherein:
the measuring step comprises measuring a jitter value;
the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and

the step of changing the parameter of the recording pulse comprises changing a movement amount of the first pulse based on the leading edge shift amount, changing a movement amount of the multipulse based on the trailing edge shift amount, and changing a movement amount of the cooling pulse based on the jitter value.

12. (Original) A recording/reproduction method according to claim 7, wherein:
the measuring step comprises measuring a jitter value;
the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and

the step of changing the parameter of the recording pulse comprises changing a movement amount of the first pulse based on the leading edge shift amount, changing a power of the multipulse based on the trailing edge shift amount, and changing a movement amount of the cooling pulse based on the jitter value.

13. (Currently Amended) A recording/reproduction apparatus, comprising:
a binary signal generating section for generating a binary signal by converting a reproduction signal to a binary form;
a synchronization signal generating section for generating a synchronization signal using the binary signal, the synchronization signal being in

synchronization with a clock signal;

an edge shift measuring section for measuring a time interval between the binary signal and the synchronization signal and measuring an edge shift amount between the time interval and a clock time interval specified by the clock signal; and

a pulse changing section for changing a parameter of a recording pulse based on the edge shift amount,

wherein the reproduction signal is a signal obtained by reproducing either a predetermined signal sequence or an arbitrary random signal sequence, as a function of and whether the predetermined signal sequence or the arbitrary random signal sequence is reproduced depends on the edge shift amount.

14. (Original) A recording/reproduction apparatus according to claim 13, wherein the edge shift measuring section measures the edge shift amount for each number of clock cycles of the clock signal.

15. (Original) A recording/reproduction apparatus according to claim 13, wherein the edge shift measuring section repeatedly measures a time interval between the binary signal and the synchronization signal, integrates the measured time intervals, and calculates a mean value of the edge shift amount.

16. (Original) A recording/reproduction apparatus according to claim 13, wherein the parameter of the recording pulse includes at least one of a movement amount, a power, and a width of the recording pulse.

17. (Original) A recording/reproduction apparatus according to claim 13, wherein the edge shift measuring section measures a leading edge time interval between a mark leading edge of the binary signal and a mark trailing edge of the synchronization signal, and measures a leading edge shift amount between the leading edge time interval and the clock time interval.

18. (Original) A recording/reproduction apparatus according to claim 13, wherein the edge shift measuring section measures a trailing edge time interval between a mark trailing edge of the binary signal and a mark leading edge of the synchronization signal, and measures a trailing edge shift amount between the trailing edge time interval and the clock time interval.

19. (Original) A recording/reproduction apparatus according to claim 13, wherein the edge shift measuring section measures a leading edge time interval between a mark leading edge of the binary signal and a mark trailing edge of the synchronization signal, measures a leading edge shift amount between the leading edge time interval and the clock time interval, measures a trailing edge time interval between a mark trailing edge of the binary signal and a mark leading edge of the synchronization signal, and measures a trailing edge shift amount between the trailing edge time interval and the clock time interval.

20. (Canceled)

21. (Original) A recording/reproduction apparatus according to claim 13, wherein: the recording pulse contains a first pulse and a cooling pulse; and parameters of the first pulse and the cooling pulse are grouped into three or more categories depending on mark length.

22. (Original) A recording/reproduction apparatus according to claim 19, wherein: the edge shift measuring section measures a jitter value; the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and the pulse changing section changes a movement amount of the first pulse based on the leading edge shift amount, changes a movement amount of the cooling pulse based on the trailing edge shift amount, and changes a movement amount of the multipulse based on the jitter value.

23. (Original) A recording/reproduction apparatus according to claim 19, wherein:

the edge shift measuring section measures a jitter value;

the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and

the pulse changing section changes a movement amount of the first pulse based on the leading edge shift amount, changes a movement amount of the multipulse based on the trailing edge shift amount, and changes a movement amount of the cooling pulse based on the jitter value.

24. (Original) A recording/reproduction apparatus according to claim 19, wherein:

the edge shift measuring section measures a jitter value;

the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and

the pulse changing section changes a movement amount of the first pulse based on the leading edge shift amount, changes a power of the multipulse based on the trailing edge shift amount, and changes a movement amount of the cooling pulse based on the jitter value.